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Waste Control Plan for the Low Level Fraction of the Retrievably Stored Waste in Burial Ground 218-W-4C

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Project Hanford Management Contractor for the
U.S. Department of Energy under Contract DE-AC06-96RL13200

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LIST OF TERMS

CERCLA	*Comprehensive Environmental Response, Compensation, and Liability Act of 1980*
CWC	Central Waste Complex
DOE	U.S. Department of Energy
Ecology	Washington State Department of Ecology
EPA	U.S. Environmental Protection Agency
ERDF	Environmental Restoration Disposal Facility
LDR	land disposal restrictions
LLBG	low-level burial grounds
LLW	low-level waste
MLLW	mixed low-level waste
PEcoS	Pacific EcoSolutions, LLC
RCRA	*Resource Conservation and Recovery Act of 1976*
RSW	retrievably stored waste
TRU	transuranic
WAC	waste acceptance criteria

WASTE CONTROL PLAN FOR THE LOW-LEVEL FRACTION OF THE RETRIEVABLY STORED WASTE FROM BURIAL GROUND 218-W-4C

1.0 INTRODUCTION

Retrieval operations for suspect transuranic (TRU) waste are currently being conducted in Burial Ground 218-W-4C located in the 200 West Area at the U.S. Department of Energy (DOE) Hanford Site (see Figure 1). The waste retrieval project in the low-level burial grounds (LLBG) is proceeding in accordance with a settlement agreement among the U.S. Environmental Protection Agency (EPA); the Washington State Department of Ecology (Ecology); and the DOE, Richland Operations Office (Hanford Federal Facility Agreement and Consent Order Approved Change Form Number M-91-03-01 "Modification of Hanford Federal Facility Agreement and Consent Order M-91 Series Provisions").

The retrievably stored waste (RSW) at 218-W-4C falls into three categories: TRU waste, low-level waste (LLW), and mixed low-level waste (MLLW). Due to the potential threat of hazardous constituents being released to the environment, a time-critical removal action was initiated to accelerate the disposition of LLW and MLLW generated from the waste retrieval operations to lined disposal trenches at the Hanford Environmental Restoration Disposal Facility (ERDF) (*Comprehensive Environmental, Compensation and Liability Act (CERCLA) Time Critical Removal Action Memorandum for Disposal at the Environmental Restoration Facility (ERDF) of Non-Transuranic (TRU) Waste Generated During the M-91 Retrieval Operations at Burial Ground 218-W-4C* [EPA 2004]). This removal action will be performed under authority of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA).

The TRU waste retrieved from the LLBG is not included in the scope of this waste control plan. The purpose of this waste control plan is to describe the LLW and MLLW that will be retrieved from Burial Ground 218-W-4C, the physical location of the waste storage areas, and other requirements to safely manage these wastes prior to shipment to the ERDF for disposal. This plan also delineates where CERCLA waste management requirements apply to the LLW or MLLW.

2.0 DESCRIPTION OF WASTE STREAMS

Suspect TRU waste at Burial Ground 218-W-4C include such items as:

- Failed process equipment; e.g., pumps, resin columns, tanks
- Miscellaneous facility solid waste; e.g., paper, plastics, glassware, solidified liquids
- Decontamination and demolition debris
- Contaminated soils.

Of the estimated 18,000 suspect TRU waste containers at Burial Ground 218-W-4C, it is expected 50 percent will be LLW or MLLW. It is anticipated that 90 percent of the MLLW will meet the definition of debris waste under section 173-303-140 of the Washington Administrative Code and the *Resource Conservation and Recovery Act of 1976* (RCRA).

The following waste types from waste retrieval operations at Burial Ground 218-W-4C are included in the scope of this waste control plan:

- LLW fraction of the RSW contained in drums
- MLLW fraction of the RSW contained in drums
- Secondary wastes generated by waste retrieval operations; e.g., potentially contaminated personal protective equipment, wood, plastic, paper, metal, and soil.

The volumes of LLW and MLLW in other containers, such as boxes, or stored in other burial grounds (i.,e., 218-W-3A, 218-E-12B and 218-W-4B) are not covered by this Time Critical Removal Action. The disposition of this waste will be addressed by subsequent CERCLA actions, such as an Engineering Evaluation/Cost Analysis.

3.0 WASTE GENERATION AND MANAGEMENT

The RSW and secondary wastes generated during the waste retrieval project will be managed in accordance with the M-91 milestones, state and federal regulations, and DOE requirements. In addition, the LLW and MLLW fraction of the RSW and associated secondary wastes will also be managed in accordance with the time-critical removal action memorandum (EPA 2004) and this waste control plan. A simplified process flow diagram for the removal action activities is provided in Figure 2. The LLW and MLLW will be managed and shipped for treatment and/or disposal from the following three locations at the 200 West Area:

- LLBG, 218-W-4C process area
- LLBG, 218-W-4C trench 33
- Central Waste Complex (CWC) waste storage buildings.

A CERCLA offsite determination per 40 CFR 300.440 will be required prior to waste shipments to offsite treatment and/or disposal facilities other than the ERDF.

Burial Ground 218-W-4C Process Area

Suspect TRU waste containers are identified and inspected prior to removal from the trench face. Once removed from the retrieval trenches, the waste containers are transferred and staged in asphalt or gravel zones in a process area located in the 218-W-4C Burial Ground. A typical layout of a process area is provided in Figure 3. Segregated areas within the process area are set up based on nuclear and criticality safety requirements and are maintained in accordance with operating procedures. The configuration of the process area is subject to change.

In the process area the containers are inspected, labeled, and barcoded as appropriate. If characterization information indicate that a drum contains TRU waste, the container is classified as TRU and is staged in the process area for venting (if needed) and preparations for shipment to a storage or processing facility (e.g., CWC, Waste Receiving and Processing [WRAP]). These TRU waste containers will undergo nondestructive assay at the WRAP Facility as part of the Waste Isolation Pilot Plant certification activities; it is anticipated that a small percentage of this TRU waste will be reclassified as LLW per the assay results. The newly reclassified LLW containers will be transferred for storage to the CWC and evaluated for disposal at the ERDF.

Suspect TRU waste containers requiring additional characterization information to classify as TRU are transferred to the process area for field nondestructive assay and venting (if needed). The waste containers that are determined to be LLW or MLLW are evaluated for the appropriate treatment and disposal pathway and are segregated accordingly in designated areas within the process area or other suitable locations in Burial Ground 218-W-4C.

Like the TRU waste containers, non-TRU containers (as determined by assay results and historical characterization information) are further designated pursuant to WAC 173-303-070

through 100. After dangerous waste designations are complete and the results identify the containers as LLW or MLLW, the waste containers are transferred from the assay or venting areas, as appropriate, to segregated staging areas in the process area.

Based on production needs, and after technical evaluations have been completed and it has been determined that the waste meets the waste acceptance criteria (WAC) of the receiving treatment and/or disposal facility (e.g., the ERDF), LLW/MLLW containers will be transferred to a CERCLA waste shipping area. LLW/MLLW containers in a CERCLA waste shipping area will be verified to meet all transportation requirements, and once approved by the ERDF or other treatment facility like Pacific EcoSolutions, LLC, the waste will be shipped to the appropriate facility for treatment and/or disposal. LLW/MLLW staged in CERCLA waste shipping areas and those shipped to the ERDF for disposal will be classified as CERCLA waste per the Time-Critical Removal Action memorandum (EPA 2004) and will be ultimately disposed of in lined trenches at the ERDF under CERCLA authority.

If it is determined during final shipment preparations that the LLW/MLLW containers do not meet transportation requirements or WAC for the ERDF or the commercial treatment facility, the LLW/MLLW waste will be transferred from the CERCLA waste shipping area to a LLW/MLLW staging area within the process area, or to a staging area for transfer to the CWC for further treatment and disposal evaluations.

Burial Ground 218-W-4C Trench 33

Approximately 440 drums of previously assayed and characterized LLW/MLLW are staged in trench 33 at 218-W-4C. These RSW containers will be shipped directly from trench 33 to either the ERDF or commercial treatment facility for treatment and/or disposal. Prior to shipment, these containers will be transferred to a CERCLA waste shipping area in trench 33 for verification that the waste meets the applicable transportation requirements and WAC. When they are staged in the CERCLA waste shipping area and shipped to the ERDF or commercial treatment facility, they will be designated as CERCLA waste and will be managed under CERCLA authority.

CWC Waste Storage Building

The LLW/MLLW fraction of the RSW may also be transferred and stored at the CWC based on space and schedule constraints at 218-W-4C. Per Milestone M-91-40, the contact-handled RSW must be designated pursuant to WAC 173-303-070 through 100 within 90 days of retrieval. After technical evaluations have been made and it has been determined that the LLW/MLLW meets the ERDF or commercial treatment facility WAC, the LLW/MLLW will be transferred to a segregated CERCLA waste shipping area at the CWC and prepared for shipment directly to the appropriate treatment and/or disposal facility. Refer to Figure 4 for a map of the CWC and waste storage buildings. LLW/MLLW staged in CWC CERCLA waste shipping areas will be managed and shipped under CERCLA authority.

Secondary Waste Streams

Secondary waste will be generated during retrieval actions, including such items as personal protective clothing, plywood, tarp materials, contaminated soils, and other waste. The amount of secondary wastes generated during retrieval operations will be minimized. Secondary waste will be staged in a process zone or other suitable location within the 218-W-4C Burial Ground. Secondary waste that meets or can be treated to meet LDRs (if mixed waste) and the ERDF WAC will be transferred to CERCLA waste shipping areas at the 218-W-4C Burial Ground or CWC and prepared for shipment to the ERDF for disposal in lined trenches under CERCLA authority. Secondary waste streams that cannot be dispositioned to ERDF will be evaluated for alternative disposal pathways.

4.0 STORAGE/TREATMENT/DISPOSAL

LLW and MLLW will be staged at the LLBG in close proximity to the retrieval trenches, in trench 33, or at the CWC. Waste will be designated in accordance with the Settlement Agreement and pursuant to WAC 173-303-070 through 100.

LLW meeting the WAC for the ERDF (BHI-00139, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*) will be staged in CERCLA waste shipping areas at the 218-W-4C Burial Ground (e.g., process area, trench 33) or CWC waste storage buildings. LLW containers in CERCLA waste shipping areas will be verified to meet all transportation requirements, and once approved by ERDF, the waste will be shipped to the ERDF for disposal in lined trenches under CERCLA authority per the time-critical removal action memorandum (EPA 2004).

In addition to meeting the ERDF WAC, MLLW must also comply with applicable land disposal restrictions (LDRs) under WAC 173-303-140 prior to disposal at the ERDF. Per WAC 173-303-140, Ecology incorporates by reference the federal regulations for LDRs in 40 CFR 268. It is expected that 90 percent of the MLLW will be debris as defined in 40 CFR 268.2(g). MLLW debris will be treated via macroencapsulation per the hazardous debris alternative treatment standards listed in Table 1 in 40 CFR 268.45. Treatment will occur at the ERDF or an offsite treatment facility in accordance with an EPA-approved Treatment Plan as specified in EPA (2004). MLLW that meets the WAC for ERDF and the applicable LDRs will be shipped to the ERDF for disposal under CERCLA authority per the time-critical removal action memorandum (EPA 2004).

It is expected that 10 percent of the MLLW will not meet the definition of debris that is amenable to treatment per the alternative treatment standards in 40 CFR 268.45. This waste will be shipped to CWC pending further evaluation for final treatment and disposal options. This disposition pathway will likely involve treatment to meet LDRs and the ERDF WAC. If it can be determined that the MLLW meets both the LDRs and the ERDF WAC, this waste will be staged in a CERCLA waste shipping area and prepared for shipment. Upon approval by the ERDF, it will be shipped for treatment and/or disposal as a CERCLA waste under CERCLA authority. MLLW waste that does not meet the ERDF WAC will be evaluated for alternative disposition pathways, including disposal in the MLLW trenches at the LLBG.

Waste will be transported in accordance with WAC 173-303, U.S. Department of Transportation, and/or DOE requirements as appropriate.

5.0 RECORDS

Documentation (e.g., NDA results, venting results/verification reports, acceptable knowledge documentation, waste designations, Uniform Hazardous Waste Manifests, Onsite Waste Tracking Forms) that is generated as a result of this removal action will be handled according to facility operating procedures. The Solid Waste Information Tracking System will be updated and records managed in accordance with established processes as defined in WMP-370, Section 2.23, "Waste Services Records Management".

6.0 REFERENCES

40 CFR 268, "Land Disposal Restrictions," *Code of Federal Regulations*, as amended.

BHI-00139, 2002, *Environmental Restoration Disposal Facility Waste Acceptance Criteria*, Bechtel Hanford, Inc., Richland, Washington.

WAC 173-303, "Dangerous Waste Regulations," *Washington Administrative Code*, as amended.

EPA, 2004, *Comprehensive Environmental, Compensation and Liability Act (CERCLA) Time Critical Removal Action Memorandum for Disposal at the Environmental Restoration Facility (ERDF) of Non-Transuranic (TRU) Waste Generated During the M-91 Retrieval Operations at Burial Ground 218-W-4C*, U.S. Environmental Protection Agency, Region 10.

EPA, Ecology, and RL, 2004, (Hanford Federal Facility Agreement and Consent Order Approved Change Form Number M-91-03-01 "Modification of Hanford Federal Facility Agreement and Consent Order M-91 Series Provisions").

Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 USC 9601 et seq.

Resource Conservation and Recovery Act of 1976, 42 USC 6901 et seq.

WMP-370, Section 2.23, "Waste Services Records Management," Fluor Hanford Waste Management Project, Waste Services.

Figure 1. Map of the 200 West Area Low-Level Burial Grounds.

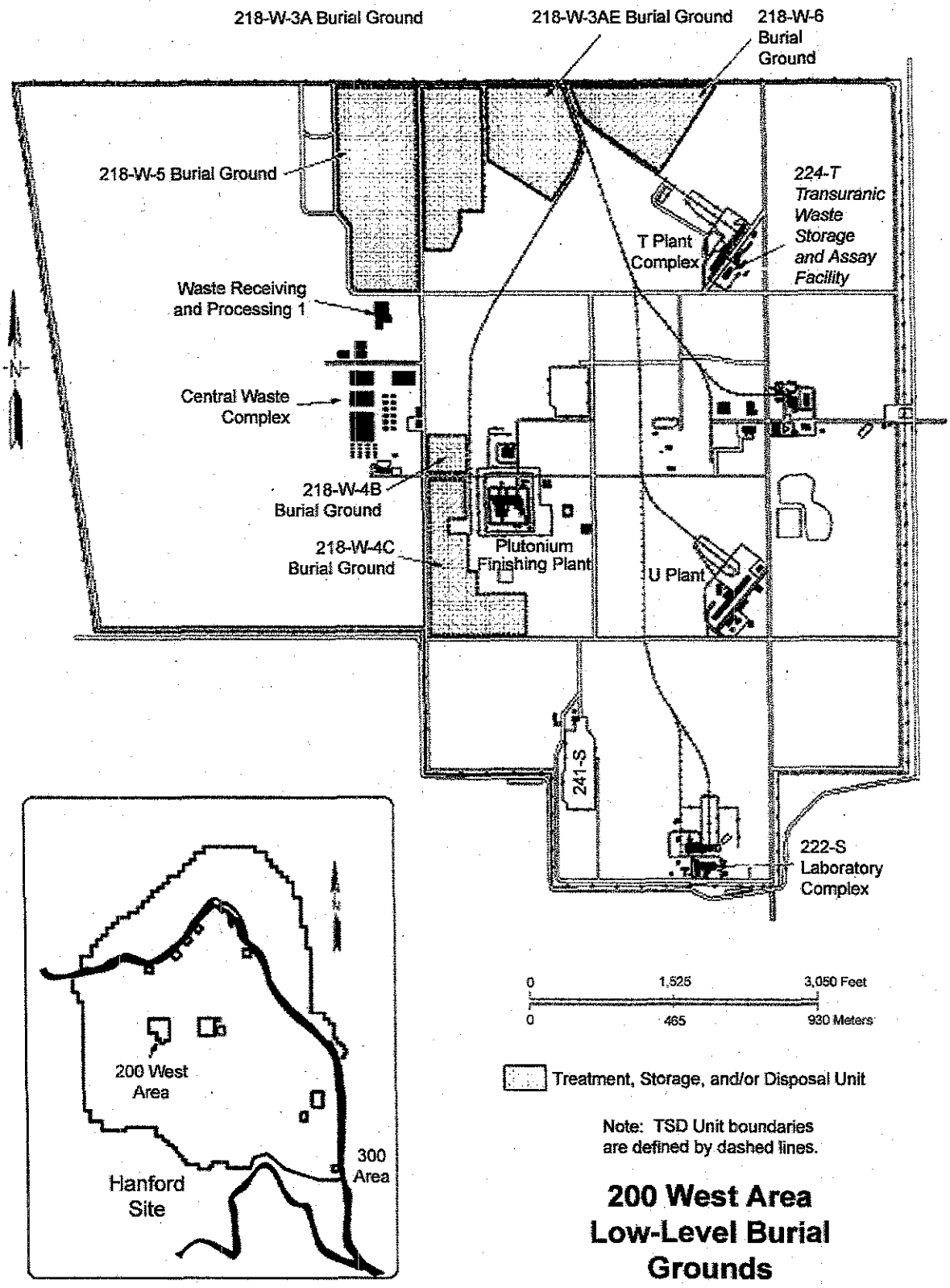


Figure 2. Process Flow Diagram for Retrievably Stored Waste Disposition.

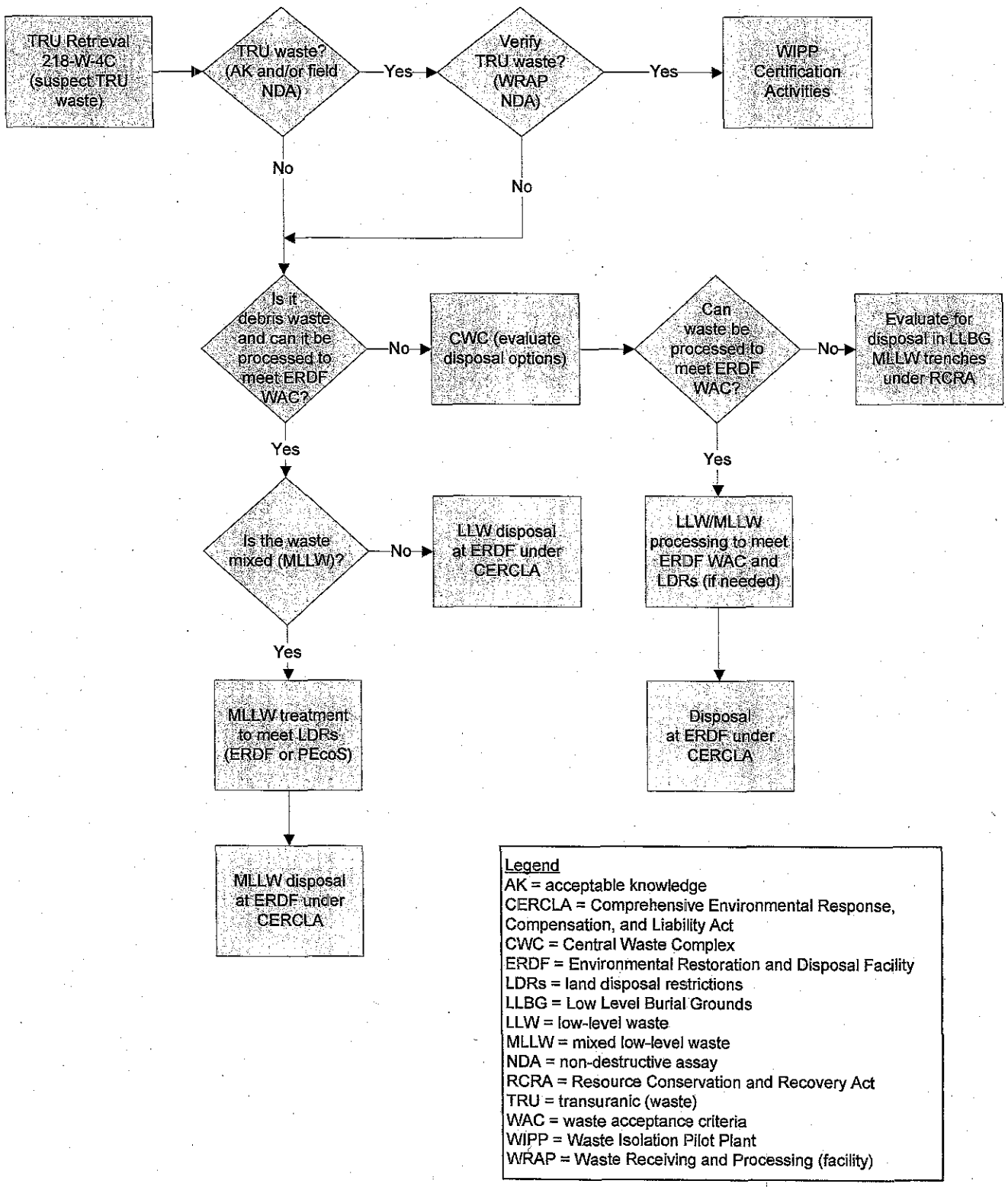
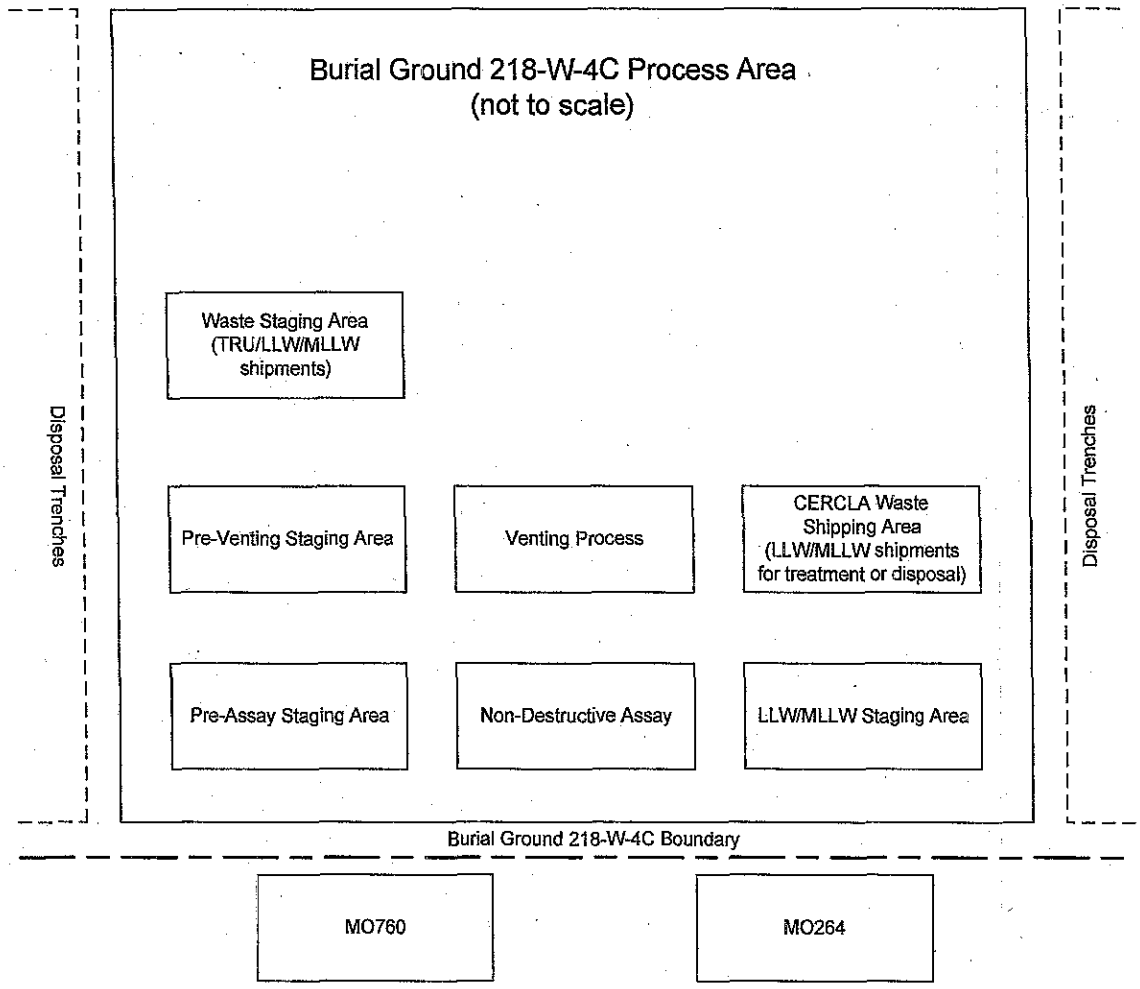
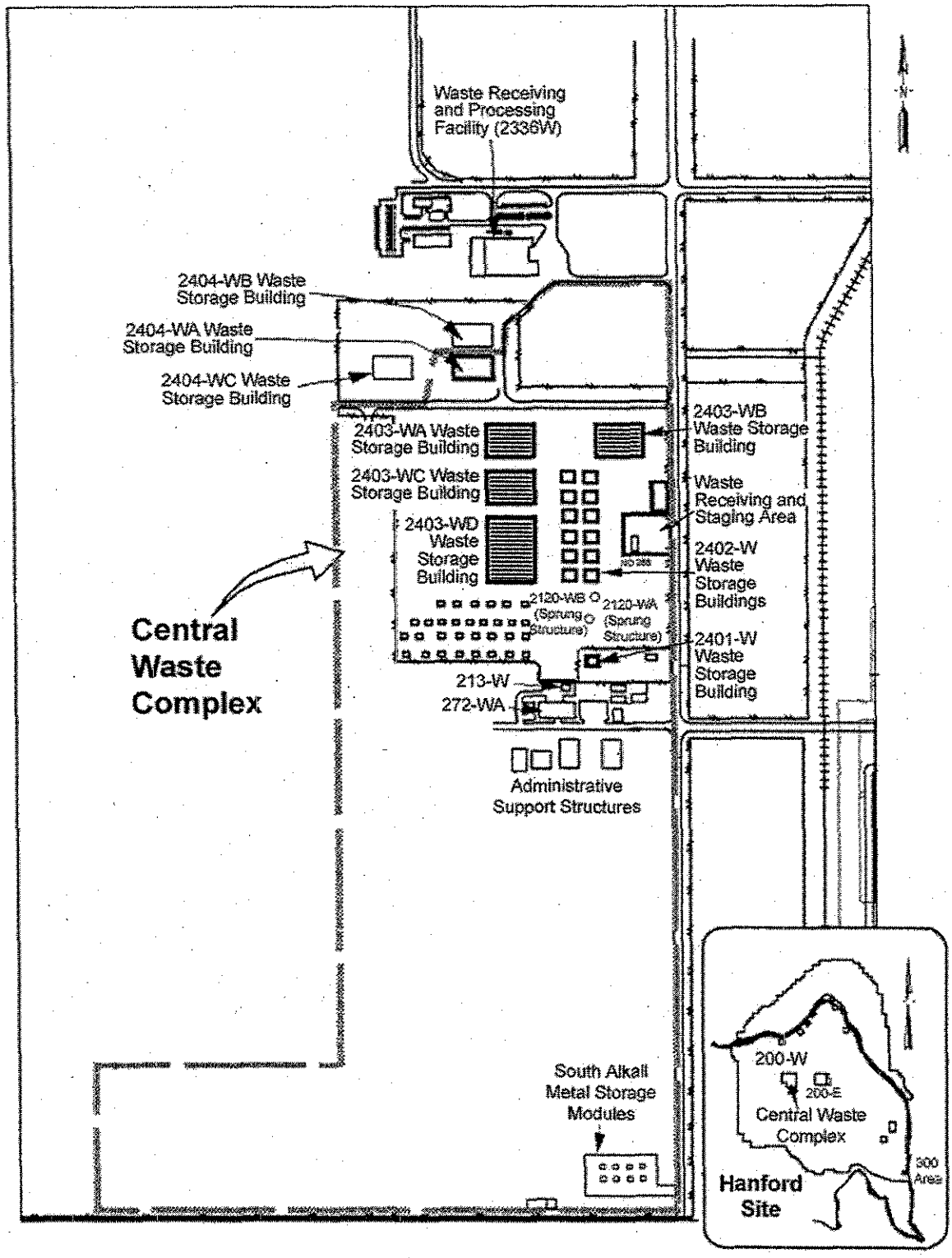


Figure 3. Typical Layout of the 218-W-4C Waste Retrieval Process Area.



Legend
CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
CWC = Central Waste Complex
LLW = low-level waste
MLLW = mixed low-level waste
MO = mobile office
TRU = transuranic

Figure 4. Map of the Central Waste Complex at the 200 West Area.



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